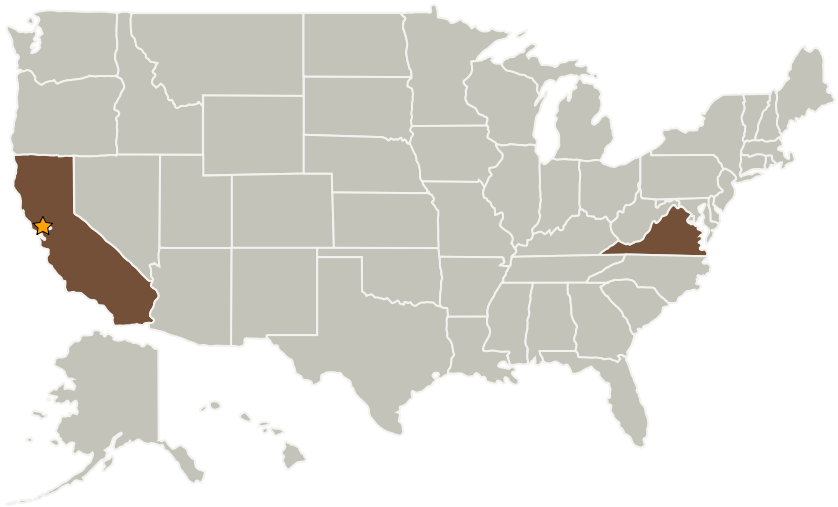
Murine Automated Urine Sampler (MAUS), Phase II

Completed Technology Project (2004 - 2006)

Project Introduction

This SBIR Phase II effort involves the development of a novel rodent spaceflight habitat, focusing on care and monitoring of mice for gravitational physiology studies. The effort is tightly linked with the Mars Gravity Biosatellite (MGB) program, a university-led initiative developing a partial gravity free-flyer research platform. It leverages both the Murine Automated Urine Sampler (MAUS) accomplished by Payload Systems, Inc. and MIT during Phase I, including demonstrating biochemical preservation of key analytes for up to five weeks, and further hardware design and prototyping conducted under separately-funded MGB activities. MAUS extends earlier NASA and other laboratory waste management and preservation techniques in a novel manner, enabling solid-state storage and quantitative analysis of small animal urine. In Phase II, we will further refine both the hardware and biochemical techniques developed for the MAUS under Phase I, and integrate these elements into a fully-functional Animal Support Module (ASM). Along with the MAUS, the ASM will include air circulation, cage lighting, video collection, food provision, water supply and additive injection, instrumented floor, and contingency euthanasia systems. This Phase II project will result in critical hardware for the MGB program and important innovations for other rodent-based flight and ground research.

Primary U.S. Work Locations and Key Partners



Murine Automated Urine Sampler (MAUS), Phase II

Table of Contents

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Ames Research Center (ARC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Murine Automated Urine Sampler (MAUS), Phase II

Completed Technology Project (2004 - 2006)

Organizations Performing Work	Role	Type	Location
★Ames Research Center(ARC)	Lead Organization	NASA Center	Moffett Field, California
Aurora Flight Sciences Corporation	Supporting Organization	Industry	Cambridge, Massachusetts

Primary U.S. Work Locations	
California	Virginia

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX11 Software, Modeling, Simulation, and Information Processing
  - TX11.6 Ground Computing
    - TX11.6.2 Automated Exascale Software Development Toolset